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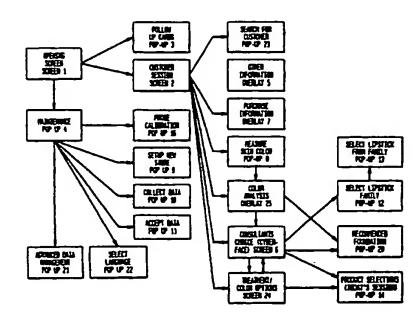
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- (71) Applicant (for AE, AU, BB, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, MZ, NZ, SD, SG, SL, SZ, TT, TZ, UG, ZA. ZW only): UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).
- (71) Applicant (for all designated States except AE, AU, BB. CA. CY. GB. GD. GH. GM. IE, IL, IN, KE, LC, LK, LS. MN. MW. MZ. NZ. SD. SG. SL. SZ. TT. TZ. UG. ZA. ZW): UNILEVER NV [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

- (71) Applicant (for IN only): HINDUSTAN LEVER LIM-ITED [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Mumbai 400 020, Maharashtra (IN).
- (72) Inventor: FLYNN, Madeline, Demayo: Elizabeth Arden Co., 40 Merritt Boulevard, Trumbull, CT 06611 (US).
- (74) Agents: ROTS, Maria, Johanna, Francisca et al.; Unilever PLC, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).
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[Continued on next page]

(54) Title: A SYSTEM FOR COLOUR COSMETIC SELECTION



(57) Abstract: A method and system is provided for selecting a facial colour cosmetic scheme. Apparatus employed for the system includes a computer module with a colour monitor screen, a spectrophotometer for measuring a customer's skin colour and a device for transferring the measured colour information from the spectrophotometer to the computer module for entry into a program allowing visualisation of a model face with skin colour matched to that of the customer. The method includes measuring via spectrophotometer a customer's facial colour, transmitting information on that colour to the module for display on the model face appearing in the monitor, allowing the customer to select at least one colour for an area of the face to be covered by a cosmetic product, and then displaying the visualised model face with the selected colour. The system and method allow a customer to visualise the colour combination without the necessity of using the actual colour cosmetic on their own face for evaluation purposes.

IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, Cl, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### Published:

- With international search report.

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#### A SYSTEM FOR COLOUR COSMETIC SELECTION

#### Field of the Invention

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The present invention relates to a method and implementing apparatus for assisting a customer in selecting colour cosmetic products.

#### 10 BACKGROUND OF THE INVENTION & PRIOR ART

Colour cosmetics are highly personal to an individual. An optimum shade is selected having relevance to a customer's skin coloration and to a colour fancied by the customer.

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Assistance in the selection of an optimal colour shade is available to help the consumer. Clinque and Clarion have installed computers at sales counters for use by customers. Information on colour, shade, oiliness and other properties of a customer's skin are punched into the computer which then determines the company's most closely matching product. Two major companies, Prescriptives (Division of Estee Lauder) and Visage (Division of Revlon) have for some time practiced a manual system for evaluating a subject's skin colour. The sales person is trained through the use of match cards to identify a user's matching skin foundation. Unfortunately manual systems suffer from poor reproducibility. Extensive training must also be invested in a sales person.

30 German patent 41 10 299 C1 (Erdtmann) discloses the use of a facial sensor for reading skin property values and then utilising the measured values in selecting an optimum skin product. Subsequently, the information is sent to an automatic cosmetic

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dispensing system for blending selected additives to formulate the selected product.

U.S. Patent 5,622,692 (Rigg et al.) reports a system for customising a facial foundation product at point of sale to a customer. Three essential elements are present. They include a skin analyser for reading skin properties, a programmable device receiving the reading and correlating it with an optimal formula and a formulation machine for preparing the facial foundation product from various cosmetic chemical compositions. Technology described in this patent has commercially been embodied in Elizabeth Arden's Custom Colour system available for many years in major department stores.

15 Arden's system has been a significant advance in the art. However, it suffers from certain deficiencies, including the inability of customers to evaluate different colour cosmetics in the context of their own skin colouration, and in juxtaposition to combinations of different facial makeover products. Thus it would 20 be desirable to have visualised a lipstick and a foundation, eye shadow and/or blush on a colour interactive basis. Especially desirable would be to evaluate the interaction of the various colour cosmetics without actually having to place these on one's own face.

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Accordingly, it is an advantage of the present invention to provide a system and apparatus for selecting a facial colour cosmetic scheme from a palette of different shades and makeup products without requiring the actual placement of these products on the customer's face.

Another advantage of the present invention is to provide a system and apparatus for selecting a facial colour cosmetic scheme allowing rapid visualisation of different coloured makeup

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permutations on various areas of the face in a simultaneous manner.

#### SUMMARY OF THE INVENTION

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The present invention provides a method for selecting a facial cosmetic colour scheme, the method including:

- (i) providing a computer module including a color monitor screen and a spectrophotometer;
- (ii) measuring a customer's facial colour with the
  spectrophotometer;
  - (iii) transmitting information on the measured facial colour to the computer module for display of that colour on a model face generated on the monitor screen;
  - (iv) allowing the customer to select at least one area of the face to be coloured with a colour cosmetic product; and
- (v) colouring the area of the model face with the selected colour.

Optionally, a further step may be added involving printing on paper the coloured display from step (v) appearing on the monitor. By this method, a customer can select eye shadow, eye liner, lipstick, lip liner, blush, foundation and/or powder with selected colours, at least some of the combination having been first evaluated on a model face generated on the computer monitor screen. A program controlling the colour and selection scheme can further be included to correlate a vendor's products which will achieve the selected colour palette.

According to a further aspect, the present invention provides a system for selecting a facial colour cosmetic scheme, the system including:

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- (i) a computer module connected with a colour monitor screen;
- (ii) a spectrophotometer for measuring skin colour;
- (iii) a mechanism for transfer of facial colour data obtained from measurements with the spectrometer over to the computer module and transmission onto the monitor screen; and
- (iv) an interactive program displayed on the monitor allowing the customer to select at least one colour for application to an area of a model face appearing on the monitor.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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- 15 The various objects, features and advantages of the present invention will become more readily apparent from consideration of the following drawing in which:
- Fig. 1 shows a flow chart diagramming a program used in the system of the invention for selecting facial colour cosmetic schemes;
  - Fig. 2 shows Screen 2 of the program;
- Fig. 3 shows Pop-Up Screen 3 of the program;
  - Fig. 4 shows Pop-Up Screen 4 of the program;
  - Fig. 5 shows Overlay 5 of the program;
  - Fig. 6 shows Screen 6 of the program;
    - Fig. 7 shows Overlay 7 of the program;

- Fig. 8 shows Pop-Up Screen 8 of the program;
- Fig. 9 shows Pop-Up Screen 9 of the program;
- 5 Fig. 10 shows Pop-Up Screen 10 of the program;
  - Fig. 11 shows Pop-Up Screen 11 of the program;
  - Fig. 12 shows Pop-Up Screen 12 of the program;

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- Fig. 13 shows Pop-Up Screen 13 of the program;
- Fig. 14 shows Pop-Up Screen 14 of the program;
- Fig. 15 shows Overlay Screen 15 of the program;
  - Fig. 16 shows Pop-Up Screen 16 through 19 of the program;
  - Fig. 17 shows Pop-Up Screen 20 of the program;

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- Fig. 18 shows Pop-Up Screen 21 of the program;
- Fig. 19 shows Pop-Up Screen 22 of the program;
- Fig. 20 shows Pop-Up Screen 23 of the program;
  - Fig. 21 shows Screen 24 of the program;
  - Fig. 22 shows Overlay 25 of the program; and

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Fig. 23 shows a printout of a stylised model face provided as a printout from the method according to the present invention including recommendation for various different types of colour cosmetics.

#### DETAILED DESCRIPTION OF THE INVENTION

Now it has been found that a customer can evaluate how different colour cosmetics can interact by first visualising different colours on different areas of the face through computerised painting of a model face upon a monitor screen. In this system a customer is allowed to select colours to be placed on different areas of the model face. A reiterative procedure then occurs. This involves the customer selecting a colour, having the program paint the selected colour onto the stylised model face and then allowing the customer to evaluate the result. No longer must a customer actually try the product on his or her own face. A very rapid and clean evaluation can occur through use of the visualised model face.

A customer's actual facial colour can be measured by a spectrophotometer/colorimeter of a type having a visible light source, such as light emitting diodes (LED), xenon-arc, tungstenhalogen and similar type in the wavelength range of 400-900 nm. The visible light source may form the sensor portion of the spectrophotometer/colorimeter. Both visible and infrared wavelength light may be utilised in connection with the sensor portion. Suitable skin analysers are commercially available from Minolta Camera Co. Ltd., Japan and from Colortec Associates. Actual skin colour normally is measured around neckline areas which are free of a customer's foundation or other cover-up cosmetics.

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Measurement starts by cleaning the areas preparatory to a reading. The spectrophotometer/colorimeter is then placed in proximity to the cleaned facial area. Visible light emitted in the 400-900 nm range by the device will be reflected off the skin surface and the

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reflective wavelength measured. It is recommended that at least five skin readings along the neck/jaw line region be taken. Total time for the reading requires approximately 30 seconds. A cable connecting the spectrophotometer/colorimeter to the computer module transmits the measured information on L, a and b thereby inputting a customer's natural skin colour parameters into the database. Alternatively the measured values can be read by the measuring consultant directly off of the spectrophotometer/colorimeter and manually banked into the computer module by typing the information on a linked keyboard.

By the term "computer module" is meant any programmable device capable of processing information. Normally these are personal computers.

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Fig. 1 is a flow chart of a program according to one embodiment of this invention. After the opening screen, a user is introduced to Screen 2 known as the 'customer session'. Client information is obtained via this screen through either a swipe card, entry via a keyboard or from a database. The screen remains active (buttons are available) when overlays are displayed. Fig. 1 provides a view of Screen 2.

A Pop-up Screen 3 next appears with comments and client information to prompt follow-up calls. This screen can be used for contacting the client to remind them to visit the store when their cosmetic supply may be low. Fig. 3 illustrates the screen.

Pop-up Screen 4 covering 'Maintenance' is then available for appearance. This pop-up screen has options for calibration and data handling. Fig. 4 sets forth the screen.

Other information is collected with Overlay Screen 5. The Overlay screen selects/changes information about skin, beauty habits, type

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and brand of products used. Overlay Screens 2 and the buttons on Screen 2 remain active. Fig. 5 describes Overlay Screen 5.

Screen 6 provides a 'Consultant's Choice'. This screen shows effects of colour palette, using client's skin colour. Information on the client's skin colour is obtained through application of a hand-held spectrophotometer against areas of the face not likely to be covered by makeup. These areas include the neck and under chin areas. The cosmetic 'look' can either be based on skin colour (skin recommendation), lipstick colour (colour family), or a specific look. Depending on selections, a list of typically five 'looks' is created, and selecting (another look) displays next look in the series. Fig. 6 sets forth Screen 6.

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Purchase information is achieved in Overlay Screen 7. This screen with previous and current purchase information (overlay to screen 2) is ordered by visit date. It contains information from up to the last five visits. Purchase information includes number, product type, product name and product number. Fig. 7 sets forth the purchase information screen.

Pop-up Screen 8 measures skin colour. It consists of a series of screens to assist an adviser with colour measurement. This session is repeated three times. Fig. 8 depicts the Pop-up Screen 8.

Pop-up Screen 9 serves to obtain information for a new store. It is used by the installation team to correctly set up the store30 specific parameters. Fig. 9 describes the Pop-up Screen 9.

· Collection of data for the main office is found in Pop-up Screen 10. Data is placed in a store's outbox, and can then be transferred in three ways. These include: (1) remote computer can

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dial in and retrieve file from outbox; (2) transfer information to a server automatically using PC-anywhere script; and/or (3) copied to floppy disk and mailed to central site. Fig. 10 illustrates the Pop-up Screen 10.

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Pop-up Screen 11 copies data from other stores. It can accept data in two ways. These include: (1) update using floppy supply by the main office; or (2) use of PC/Anywhere script to retrieve update file from main office outbox. Fig. 11 illustrates the Pop-up Screen 11.

10 up Screen 11.

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Pop-up Screen 12 allows selection of a colour lipstick family. The customer advisor can either enter a specific lipstick number, or choose a colour family, then choose a colour from the family. The active colour palette will consist of individual palettes that contain that lipstick. The advisor can also enter a specific look (can be either from a previous visit or any of the available looks in the palette). Fig. 12 describes the pop-up Screen 12.

20 Pop-up Screen 13 allows selection of lipstick from a colour family (as selected from Pop-up Screen 12). If the lipstick is also in the palette recommendation based on skin tone, the colour is put first in the list, and (expert fit) is added to the name. Fig. 13 describes the Pop-up Screen 13.

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Pop-up 14 shows product selections (treatments in cosmetic colours) made during the present session. Product selections can be made during colour viewing (Screen 6), treatment/product options (Overlay 24) or Recommended Foundation (Pop-up Screen 20). There also is a display of recommended looks. Fig. 14 describes the Pop-up Screen 14.

Overlay Screen 15 is used to provide a snapshot of the type of customer. For detail purchase history, Overlay 7 provides the

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purchase information. Included in this screen are key purchase properties, group by type, over the past twelve months. It is automatically displayed for each customer. Fig. 15 lists the Overlay Screen 15.

- Pop-up Screen 16 is a probe for calibration/routine and for messages to calibrate probe. Fig. 16 details the Pop-up Screens 16-19.
- 10 Pop-up Screen 20 is used to recommend the best foundation product combination based on skin colour and product preferences. Fig. 17 details the Pop-up Screen 20.
- Pop-up Screen 21 is an advanced data management module. This is used by the main office. Fig. 18 details the Pop-up Screen 21.
  - Pop-up Screen 22 relates to language selection. Fig. 19 details Pop-up Screen 22.
- 20 Pop-up Screen 23 is used to locate and activate a client. If this is a new client, the 'new' button is clicked to create the new client file. Fig. 20 details Pop-up Screen 23.
- Screen 24 details treatment/colour/fragrance options showing all the option products. Fig. 21 details Screen 24.
  - Overlay 25 focuses on skin colour analysis allowing selection of shade and tone. Fig. 22 details the Overlay 25.
- The foregoing description illustrates selected embodiments of the present invention. In light thereof variations and modifications will be suggested to one skilled in the art, all of which are within the scope of this invention.

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#### **CLAIMS:**

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- 1. A method for selecting a facial colour cosmetic scheme, the method comprising:
- 5 (i) providing a computer module including a colour monitor screen and a spectrophotometer;
  - (ii) measuring a customer's facial colour with the spectrophotometer;
- (iii) transmitting information on the measured facial colour to the computer module for display of that colour on a model face generated on the monitor screen;
  - (iv) allowing the customer to select at least one area of the face to be coloured with a colour cosmetic product; and
  - (v) colouring the area of the model face with the selected colour.
- 2. The method according to claim 1 further comprising the steps 20 of printing in colour on paper the displayed model face via a printer.
- The method according to claim 1 or claim 2 wherein areas of the face to be coloured are those selected from the lips,
   eyelashes, eyelid, cheeks and combinations thereof.
  - 4. The method according to any of the preceding claims wherein a program operated by the computer module stores information on a vendor's products which will achieve the selected colour when placed upon the selected area of the face.
  - .5. A system for selecting a facial colour cosmetic scheme, the system comprising:

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- (i) a computer module connected with a colour monitor screen;
- (ii) a spectrophotometer for measuring skin colour;

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- (iii) a mechanism for transfer of facial colour data obtained from measurements with the spectrometer over to the computer module and transmission onto the monitor screen; and
- (iv) an interactive program displayed on the monitor allowing a customer to select at least one colour for application to an area of a model face appearing on the monitor.

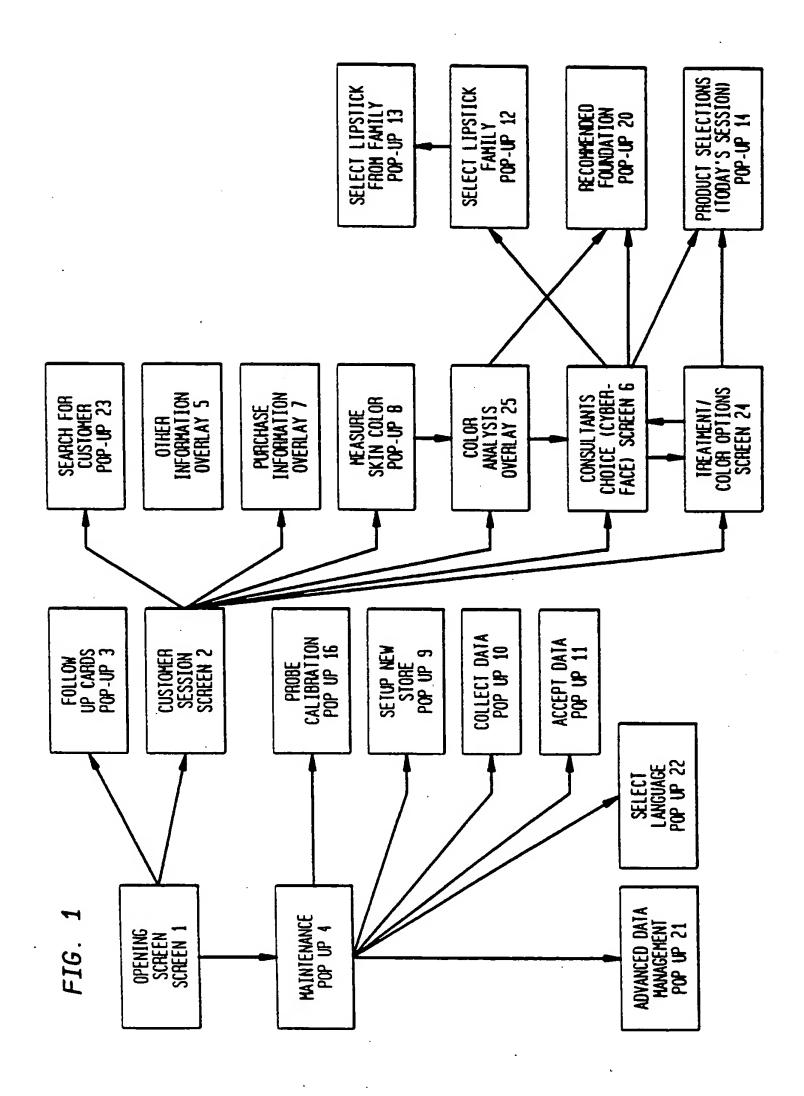


FIG. 2

Personal Information Name Last Name Address City	n State	of Birth	Day	◆Verify  Month  conds to	Address and Cust Info! [SEARCH] [NEXT] [PREVIOUS] [CANCEL] [CLOSE]  Mailing
(Over	lay area - not to sc	ale)		PURCHASE PURCHASE PRODUCT	SKIN COLOR) ALYSIS)

FIG. 3

Customer fo	llow up cards With clients information	1	
	List of Names	Information On Selected Customer	,
	0	[] CALL COMPLETE	
		[PRINT] [CLOSE]	

FIG. 4

# MAINTENANCE [CALIBRATE SKIN READER] [LANGUAGE] [SET UP NEW STORE] [COLLECT DATA FOR MAIN OFFICE] [ACCEPT DATA FROM LOCAL STORES] [ADVANCED DATA MANAGEMENT] [CLOSE]

FIG. 5

			OTHER INFOR	MATION			
Skin Typ	e	Age Profile	Beauty Habits	Fragrance	Other Brands		
⊕ Sensit Normal to Normal to Ory Oily	o dry	15-20 20-30 30-40 40-50 50+	Make-up Cleanser/Toner Moisturizer Special Treat. Sunscreens Body Products	More than one	ologne Biotherm erfume Channel ore than one Clarins	Channel Clarins Clinique Dior Estee Lauder H. Rubenstein	
	Spec Prefe	cial Preferenters fragrance	ces of Needs: free products			{ Accept	

FIG. 6

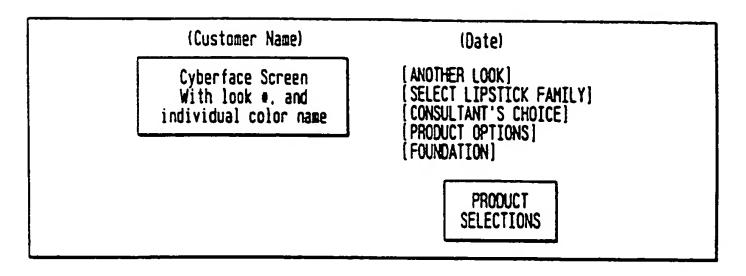


FIG. 7

	Purchase	Information	
Today	1	JANE DOE	7
(1) Lipstick	125	Purchased	7
(1) Hydrolight	Bisque	Recommended	
(1) Mousse	Bisque	Not Appropriate	[Recommended]
	905	TANE DOE	Sample] [Not Appropriate] [Remove]
Date	303	JANE DOE	_
(2) Ceramide Complex		Sampled	
Today		-	
Look 001	Plums	Recommended	
Look 003 Look 004	Reds Naturals	Recommended Recommended	

FIG. 8

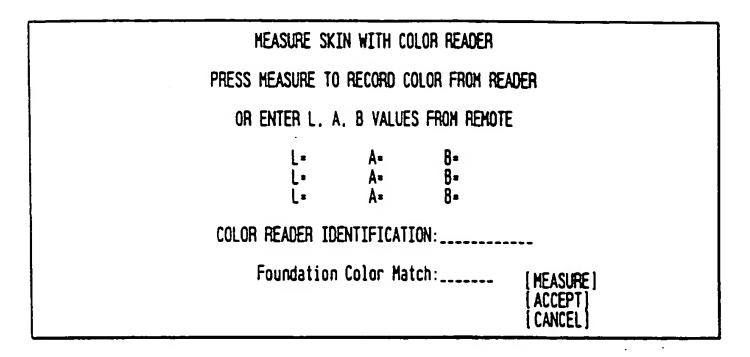


FIG. 9

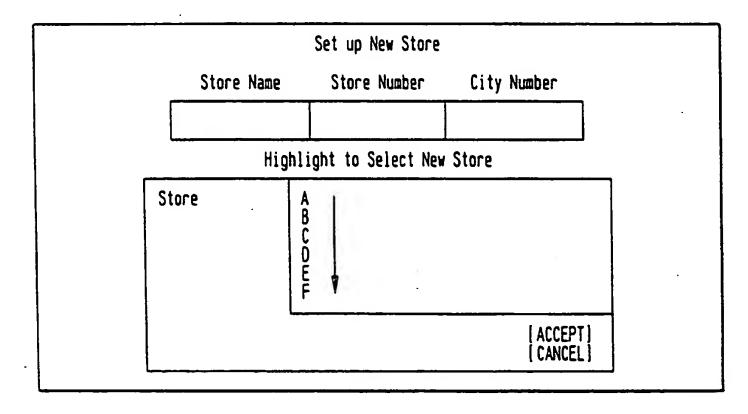


FIG. 10

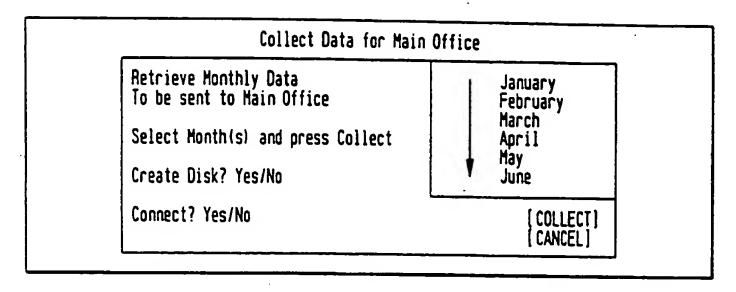


FIG. 11

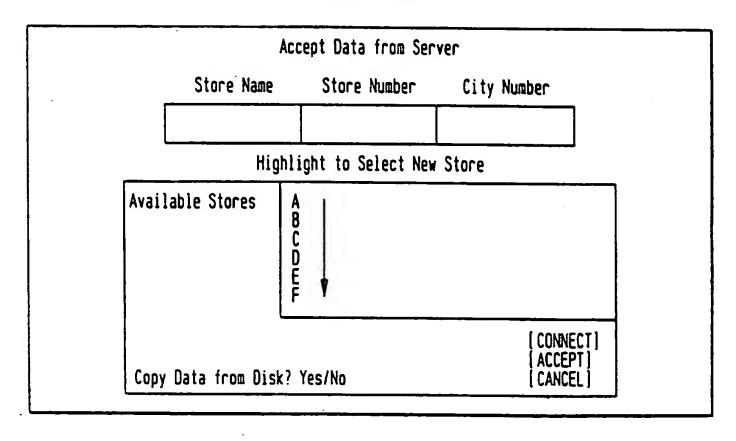


FIG. 12

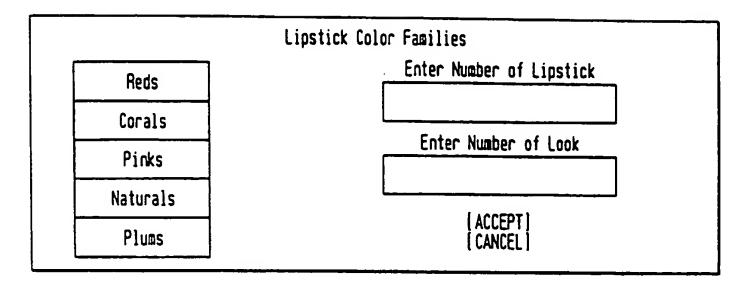


FIG. 13

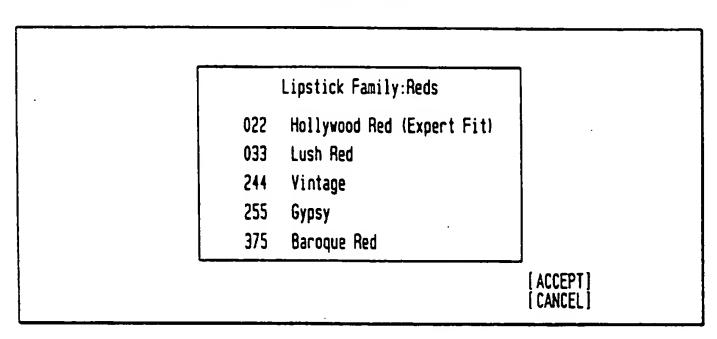


FIG. 14

	Today	y's Product Selections	
(#) Product Type  ⊗ (1)Lipstick  ⊗ (2)Hydrolight  ⊗ (1)Mousse  ⊗ Look 321  ⊗ Look 496	Color 121 Bisque Bisque Reds Plums	Recommended Purchased Recommended Recommended Recommended	[Recommended] [Purchase] [Sample] [Not Appropriate] [Remove] [Print] [Accept]

FIG. 15

F	Purchase History	1
Last purchase:	Date	Jane Doe
Total purchases:	2 (Last)	12 (Past Year)
SkinCare (3)		
<ul><li>⊗(4) Ceramide Capsules</li><li>⊗(3) Millenium Cream</li><li>⊗(2) Perfection Cream</li></ul>	30 Jan 30 Nov 30 Nov	Purchased Purchased Purchased
Color (2)		
⊗(1) Flawless Finish (121) ⊗(1) Exceptional Lipstick (906)	30 Jan 30 Dec	Purchased Purchased
Fragrance (1)		
⊗(1) Sunflowers ⊗(1) Red Door	30 Oct 30 Sep	Purchased Purchased
Fragrance (1)		
<ul> <li>⊗ Red Door</li> <li>⊗ Exceptional Lipstick</li> <li>⊗ Perfection Cream</li> </ul>	30 Jan 30 Jan 30 Jan	Sampled Recommended Non-Appropriate

 $\otimes$  - Denotes product type icon

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Press button on color reader twice slowly To record calibration color Color Reading in Progress... Probe calibrated, OK to continue? Pop-up 19 Continue Turn color reader off and Place Color Reader on the On.

Reader display should read Press (Enter) when ready!

Press (Enter) when ready!

Enter Ready to Read Color Tile Pop-up 18 Switch to Set Cal. Plate Pop-up 17 Enter Warning: Skin Reader not calibrated -Continue anyway? (Y or N) Probe Calibration Probe not calibrated! Pop-up 16 Probe Calibration

FIG. 16

FIG. 17

Product	Color	
Mousse	234	[Recommend]
Hydrolight	123	[Purchase]
Pressed Powder	Medium 2	[Sample]
		[Accept]

FIG. 18

Update Doors Update Product List	Yes Yes	No No	
Export new Clients	Yes	No	[Import Update File [Create Update File
Clean returns database Delete entries more than	Yes 3 months	No	[Print Returns]
ocicie citti ico more tilan	6 months 9 months 12 months		[Connect] [Close]

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FIG. 19

Language Selection	
[English]	
[Spanish]	
[French]	

FIG. 20

Search for Customer			
Name:			
List of Names	Information On Selected Customer		
	[ ACCEPT] [ NEW CUSTOMER] [ CANCEL ]		

FIG. 21

Treatment/Color Product Options			
Product	Color	[]Treatment []Color	
Skin Illuminating Complex Millenium Night Millenium Energist		[]Fragrance [Recommend] [Purchase]	
		{Sample} [Not appropriate]	
Advertisement Video		[What's New]	
<u> </u>		( ACCEPT ) ( CANCEL )	

FIG. 22

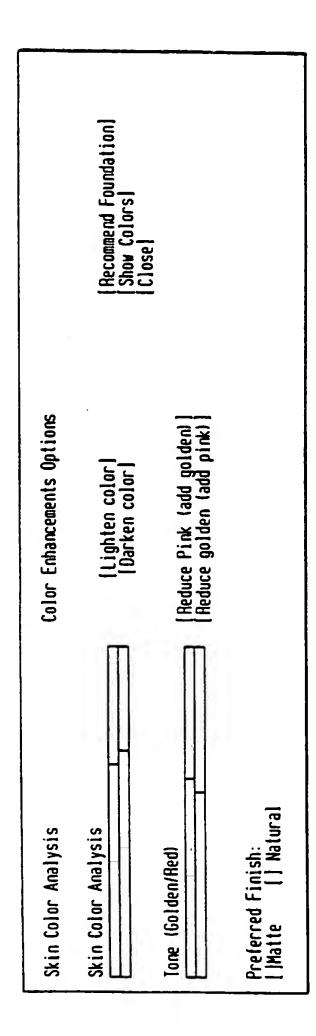
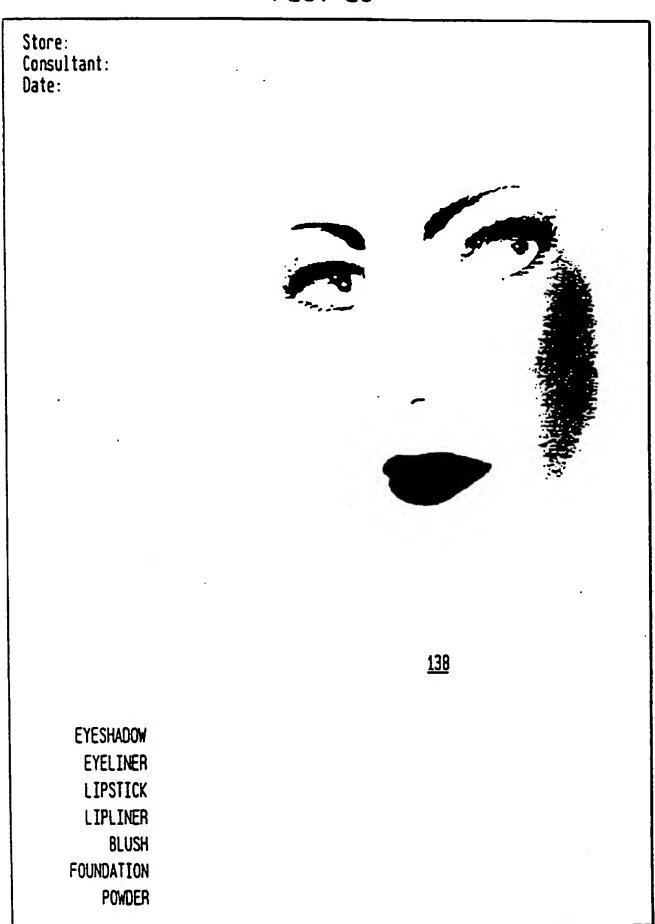


FIG. 23



## INTERNATIONAL SEARCH REPORT

Inte. Jonal Application No PCT/EP 00/05407

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06T11/00

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 G06T

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal, WPI Data, IBM-TDB, INSPEC

C. DOCUM	C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category '	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.			
Y	EP 0 226 959 A (HORIKITA TSUKASA) 1 July 1987 (1987-07-01) page 2, line 26 -page 3, line 3 page 8, line 39 - line 56; figures 2,26	1-3,5			
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A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 10, 31 August 1999 (1999-08-31) & JP 11 143352 A (ONISHI NETSUGAKU KOGYOSHO:KK), 28 May 1999 (1999-05-28) abstract	1-5			

X Further documents are listed in the continuation of box C.	Patent family members are listed in annex.		
* Special categories of cited documents:  *A* document defining the general state of the art which is not considered to be of particular relevance.  E* earlier document but published on or after the international filling date.  L* document which may throw doubts on priority claim(s) or which is cred to establish the publication date of another citation or other special reason (as specified).  O* document referring to an oral disclosure, use, exhibition or other means.  P* document published prior to the international filing date but later than the priority date claimed.	"T" later document published after the international filing date or principly date and not in conflict with the application but cited to understand the principle or theory underlying the invention.  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family.		
Date of the actual completion of the international search  28 September 2000	Date of mailing of the international search report  05/10/2000		
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentiaan 2  NL - 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo ni,  Fax: (+31-70) 340-3016	Authorized officer Perez Molina, E		

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